

Appl. No. 10/623,815
Amdt. dated 12/19/06
Reply to Office action of 9/19/06

REMARKS/ARGUMENTS

Reconsideration of the application is requested.

Claims 1-3 and 5-23 remain in the application and are subject to examination. No claims have been amended, added or canceled herein.

In "Claim Rejections - 35 USC § 103," on pages 2-6 of the above-identified Office Action, claims 1-3 and 5-13 have been rejected as being obvious over U.S. Patent No. 6,476,486 to Humphrey et al. (hereinafter Humphrey) in view of U.S. Patent No. 5,646,434 to Chrysostomides et al. (hereinafter Chrysostomides) under 35 U.S.C. § 103(a).

As will be explained below, it is believed that the claims are patentable over the cited art in their existing form and, therefore, the claims have not been amended to overcome the references.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful. Claim 1 calls for, *inter alia*, a semiconductor component comprising:

a semiconductor chip including an electronic circuit configured in said semiconductor chip, said electronic circuit having a terminal for a signal to be processed,

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a stage connected to said terminal for the signal, a terminal for obtaining a supply potential, said terminal for obtaining the supply potential being connected to said stage, said stage being selected from a group consisting of an input stage and an output stage;

a first conductor track running outside said semiconductor chip, said first conductor track being connected to said terminal for the signal;

a second conductor track running outside said semiconductor chip, said second conductor track being connected to said terminal for obtaining the supply potential;

a further conductor track running outside said semiconductor chip, said further conductor track being connected to said second conductor track, said further conductor track entirely surrounding said semiconductor chip, said further conductor track crossing said first conductor track, defining a crossing location, and said further conductor track crossing said second conductor track; and

an electrostatic discharge protection element for carrying an electrostatic discharge away from said terminal for the signal and to the supply potential, said electrostatic discharge protection element being disposed outside of said semiconductor chip, said electrostatic discharge protection element being connected outside of said semiconductor chip to said further conductor track and to said first conductor track, said electrostatic discharge protection element being disposed close to said crossing location.

Accordingly, claim 1 continues to call for an electrostatic discharge protection element connected outside of a semiconductor chip to a further conductor track entirely surrounding the semiconductor chip and to a first conductor track connected to a terminal for a signal.

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It is believed that the combination of references still do not show or suggest these limitations of the claim.

The Humphrey reference discloses, in Fig. 8 thereof mentioned by the Examiner, a ball grid array 10 having contact pads 18, a border 14, a die attachment region or cavity 12 and an integrated circuit 20 having contact pads 21. A power ring 17 and a ground ring 15 surround the integrated circuit 20. An **off-chip** Zener diode D1 mentioned by the Examiner is disposed between a contact pad 18 and the ground ring 15.

Chrysostomides discloses a protective structure having input stages 1, 2 and **on-chip** protection elements 13.

As stated above, in the latest Office Action, the Examiner refers to the diode Z1 shown in the right-hand portion of Fig. 8 of Humphrey. The diode Z1 is represented as a rectangle covering a contact pad 18 of the ball grid array 10 with its upper right corner and covering the ground ring 15 with its left side. The connection of the diode Z1 to other elements of the circuit is not very clear from Fig. 8.

However, column 5, lines 18 to 20 of Humphrey explain the connection of the diode Z1 as follows: "Zener diode Z1 is coupled between a contact pad 18 of the ball grid array and a contact pad 21 of the integrated circuit".

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In the invention of the instant application, however, the ESD protection element 32 which, according to the Examiner, corresponds to the diode Z1 of Humphrey, is not connected between two contact pads as is the case of the diode Z1 and pads 18, 21 of Humphrey. Instead, in the invention, the ESD protection element 32 is connected between the further conductor track 3 and the first conductor track 15. In this regard, the Humphrey reference describes only (column 5, lines 18 to 19) that the Zener diode Z1 is coupled between two contact **pads** 18, 21 and lacks any disclosure of a connection to a conductor track.

The examiner makes reference to the ESD protection element 13 of Chrysostomides. However, any ESD protection elements in Chrysostomides are **on-chip**, while the Zener diode Z1 of Humphrey is **off-chip**. Accordingly, the person skilled in the art would be hesitant to transfer a teaching from Chrysostomides to Humphrey, with regard to the ESD protection element.

Furthermore, it is noted that as is described in column 5, lines 18 to 19 of Humphrey, the Zener diode Z1 is connected between the contact pad 18 and the contact pad 21, which is a series configuration between the contact pad 18 and the

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contact pad 21. By contrast, the ESD protection element 13 of Chrysostomides must serve to carry an electrostatic discharge away from the terminal for the signal to the supply potential, which requires a connection between that terminal for the signal to a conductor track that runs the supply potential. Since the Zener diode Z1 of Humphrey has a function different from the ESD protection element 13 of Chrysostomides, a person skilled in the art would not be advised to use such an ESD protection element in place of the Zener diode Z1 of Humphrey, since that would change the function of the Zener diode Z1 in Humphrey.

As a result, it is believed that a person skilled in the art would not receive a suggestion from Humphrey and Chrysostomides for an electrostatic discharge protection element for carrying an electrostatic discharge away from the terminal for the signal and to the supply potential, in which the electrostatic discharge protection element is connected outside of the semiconductor chip to a further conductor track and to a first conductor track.

Clearly, neither Humphrey nor Chrysostomides show an electrostatic discharge protection element connected outside of a semiconductor chip to a further conductor track entirely surrounding the semiconductor chip and to a first conductor

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track connected to a terminal for a signal, as recited in claim 1 of the instant application.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claim 1. Claim 1 is, therefore, believed to be patentable over the art. The dependent claims are believed to be patentable as well because they all are ultimately dependent on claim 1.

In view of the foregoing, reconsideration and allowance of claims 1-3 and 5-13 are solicited.

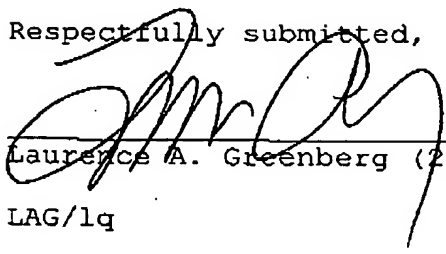
In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out. In the alternative, the entry of the amendment is requested, as it is believed to place the application in better condition for appeal, without requiring extension of the field of search.

If an extension of time is required, petition for extension is herewith made. Any extension fee associated therewith should be charged to Deposit Account Number 12-1099 of Lerner Greenberg Stemmer LLP.

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Please charge any other fees that might be due with respect
to Sections 1.16 and 1.17 to Deposit Account Number 12-1099
of Lerner Greenberg Sterner LLP.

Respectfully submitted,



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LAG/lq

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